Columbia Defense

Group Members: Zhefeng Xu
Chao Li
Yang Bai
Tianlei Zhou

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Overview of the game

- ➢ Attackers have 5 parellel pathways towards our campus

- ➢ All of the attackers and defenders have different kinds of features and attack techniques

- ➢ Killing attackers will make some money for the user to build more defenders (Attempted)

Structure:
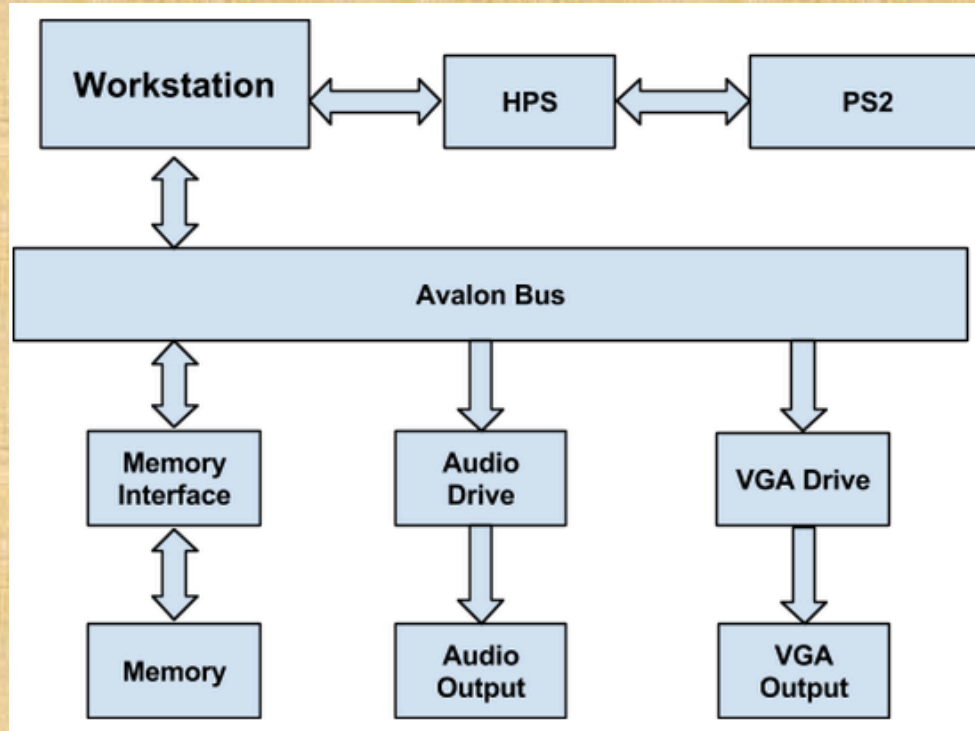
Hardware: Image & sound

➢ Image category and size: background & attackers & defenders & bullets

➢ MatLab: size, peripheral background, format conversion

Hardware: VGA

➢ Background including the map of the game, the location we set our defender, the path towards our campus, etc

➢ 4 different defenders and 3 attackers and each has different appearance

➢ Different attacking, hitting and moving effect for attackers and defenders

➢ The game money system and defenders selection part should be shown on the specific part of the screen

Score Counter*

"Number" Graphs, hopping between graphs

ROM storage: plan quitted

7-segment (pure HARDWARE)

Non connected with other part already.

Video: achieved display "bAI.yAng"

1400033129924.mp4

Hardware: Sprite

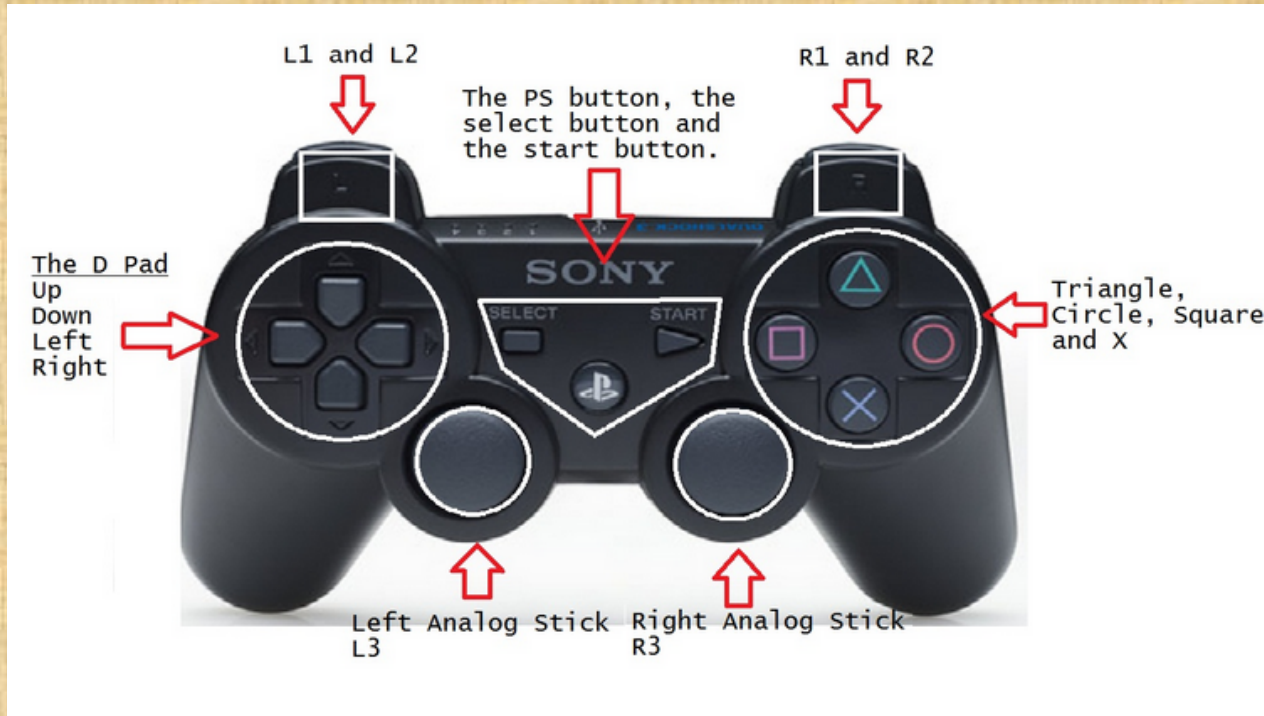➢ Action: Two pictures exchange (10 delay time)

Hardware: AUD

➢ Inter-Integrated Circuit(I^2C) protocol:16-bit data take 3 acks

➢ PLL clock: 11.2893Mhz

➢ Game Sound Effect:

Once there comes a request (attracking) the corresponding short audio will be triggerred and play for one time

Hardware: PS2 controller

Software

➢ User interface & main function

➢ Control of every attacker and defender (3 behavior most): move, attack and die

➢ Control when sounds need to work

Challenges

➢ ROM storage
Solution attempts: DDR，repetitive graph and audio pieces, etc.

➢ We have to assign every hero and attacker their own function, the workload is somehow multiplied.

➢ Picture Tailoring without white "margin-noise"
Attempts: select graphs with sharp color switch

Highlight Advantages

➢ Picture display effects.

➢ Multiple functions for each hero, complex game structure.

Further design ideas

➤ Complete the unfinished goals
  Digit counter, upper blank area filling with proper background pictures, dying effects(ash), etc.

➤ More defenders and attrackers with different feature abilities; create more different levels of game; balance the difficulty of each levels

THANK YOU